



DETROIT ADOBE EXPERIENCE MEETUP

Sling Repoinit

July 9, 2020





About Me

- Last name pronounced “Kelso”
- Technical Director at Perficient
- Originally from Michigan
- Worked with AEM since CQ 5.2
- PMC member of Apache Sling

What do I get out of this?

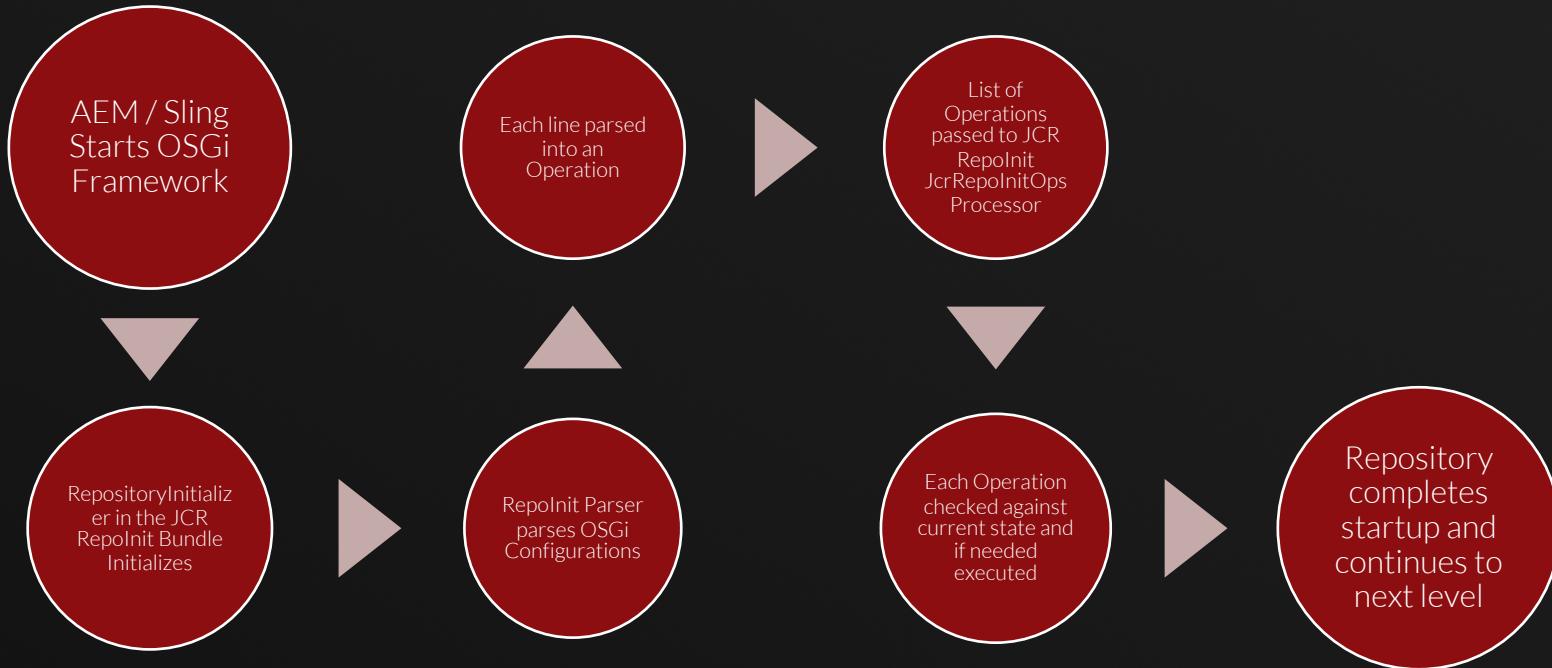
- Introduction to Sling Repoinit
- Sling Repoinit Project Use Cases
- Why Sling Repoinit vs Other Options
- Integrating Sling Repoinit into Your Project
- Tech Preview: Repoinit WebConsole

What is Sling RepoInit?

Sling RepoInit is:

- Part of the Apache Sling Project
- Used by Sling to initialize the Apache Sling repository in the Provisioning and Feature Model
- Also available to projects to further configure the repository
- Implemented as a Domain Specific Language (DSL) with a parser and JCR implementation

How Does Sling Repoinit Work in a Project?



Repolnit Use Cases





What you can do with Repoinit

Create, Delete, and
Enable/Disable:

- Groups
- Service Users
- Users

Set / Remove Privileges

Add Glob Restrictions

Add / Remove Group Membership

Create Resources

Set Properties

Create OSGi Configurations

Create Namespaces

Create JCR Node Types

Sling Repoinit Use Cases

Automated Permission Model

- Create Users & Groups
- Assign Group Membership
- Assign ACLs to paths

Configure Application

- Create Service Users
- Set Service User Permissions

Initialize Content Structure

- Create paths
- Set node types
- Set / default properties

A close-up photograph of a person's hands holding a bright green apple. The background is blurred, showing shelves stocked with various grocery items like eggs and other produce. The lighting is warm and focused on the apple.

Repolnit

Comparing to Other Solutions

Comparing to Other Solutions

ACL Packages

Use ACS AEM Commons or similar to create a Content Package with base content structure and ACLs

Netcentric AC Tool for AEM

Open Source tool for managing ACLs via YAML and Content Packages

Apache Sling Repoint

OOTB Apache Sling Repository Initialization

Comparing to Other Solutions

ACL Packages

Pro:

- Works on all AEM Versions

Con:

- Difficult to manage initial vs. current state
- Fragile, difficult to maintain

Netcentric AC Tool for AEM

Pro:

- Works on most AEM Versions
- Run mode support
- Cleans up changed / removed groups
- Configuration stored in consolidated file(s)

Con:

- Requires additional dependencies

Apache Sling Repoint

Pro:

- OOTB Feature
- Supports Run Modes
- Configuration stored in consolidated file(s)

Con:

- Only supported in recent versions of AEM and Cloud Service
- Requires additional script to cleanup

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Integrating



What do I need for Sling Repoinit?

Sling Repoinit* requires AEM 6.5 SP4+ or AEM as a Cloud Service.



* the cool stuff

Recommended Dependencies

AEM 6.5 includes an older version of Sling Repoinit, recommend installing:

- [org.apache.sling.jcr.repoinit – 1.1.24](#)
- [org.apache.sling.repointit.parser – 1.6.2](#)

Integration Sling Repoinit

- Create OSGi Service Factory Configuration for PID org.apache.sling.jcr.repoinit.RepositoryInitializer, e.g:

```
/apps/myapp/config/org.apache.sling.jcr.repoinit.RepositoryInitializer~myapp.config
```

- Set the scripts property with an array of the operations to execute, e.g.:

```
scripts=[ \
    "create\ service\ user\ myuser", \
    "set\ ACL\ for\ myuser\r\nallow\ jcr:read\ on\ /content\r\nend", \
]
```

- I've also outlined a technique for loading the configurations via OSGi bundle resources here:

<https://blogs.perficient.com/2020/06/17/one-tool-to-configure-them-all-sling-repoinit/>

A close-up photograph of a small, orange toy truck with large black tires, positioned on a light-colored, textured surface. The truck has a white roof and a red front grille. A red diagonal line runs from the bottom left towards the top right, separating the image into two halves.

Demo

Sling Repoinit + IMS

Challenges

- Repoinit does not support Authorizable names with spaces
- IMS only creates groups on login

Solution

- Use Underscores or Dashes to Separate AEM Group Names in IMS
- Use the AMS Group Sync utility:
 - Create the groups in IMS
 - Synchronize the groups
 - Run the Repoinit scripts

OR

- Add a user to every group and attempt a login

OR

- Use IMS for authentication and AEM Repoinit Groups for authorization

Tech Preview

RepoInit Web Console

The screenshot shows the Adobe Experience Manager Web Console RepoInit interface running on a laptop. The interface has a dark theme with white text and light gray highlights.

Toolbar: Main, OSGI, Sling, Status, Web Console, Sling RepoInit Documentation.

Section Headers: Adobe Experience Manager Web Console, RepoInit.

Test RepoInit: Test RepoInit Statements.

```
allow some:crx:privilege for doo_one_service
and
# NodeTypes inside the path apply to just that path element
create path /content/example/com/sling/folder

# NodeTypes and mixins applied to just a path element
# Specifying mixins require
#   & 0.0.1.jcr:repository 2.0 and
#   & 0.0.1.jcr:repository 1.6
create path /content/example/com/sling:Folder mixin mix:referenceable,mix:shareable

# Mixins applied to just a path element
create path /content/example/com/sling:Folder mix:referenceable

# If a nodeType in front is used as the default for all path elements
create path /nt:unstructured /var

set ACL for alice, bob,fred
# remove is currently not supported by the jcr:repoInit module
remove /content/var
allow jcr:read on /content/var
deny jcr:write on /content/example.com
deny jcr:print on / nodeType example:Page
```

Execute: Run.

PARSING SUCCESSFUL:

```
CreateServiceUser("user_1", "user_1")
CreateServiceUser("user_2", "user_2")
SetNodePath("/jcr:root/jcr:content/jcr:node1", "user_1", privilege(jcr:read))
SetNodePath("/jcr:root/jcr:content/jcr:node2", "user_2", privilege(jcr:read))
Accline DENY (principal="user_1", privilege=jcr:read)
Accline DENY (principal="user_2", privilege=jcr:read)
Accline REMOVE (principal="user_1", privilege=jcr:understand, someOther)
CreateServiceUser("bob_the_service", "bob")
SetNodePath("/jcr:root/jcr:content/jcr:node3", "bob_the_service", privilege(jcr:read))
Accline ALLOW (principal="bob_the_service", privilege=someOtherPrivilege)
CreatePath("/content", example.com:sling:Folder mixin [mix:referenceable, mix:shareable])
CreatePath("/var", example.com:sling:Folder mixin [mix:referenceable])
CreatePath("/var/jcr:root", example.com:sling:Folder mixin [mix:referenceable])
SetNodePrincipals(["alice", "bob", "fred"])
SetNodePath("/jcr:root/jcr:content/jcr:node4", "alice", privilege(jcr:read))
Accline ALLOW (path="/content", "var", privilege=jcr:read)
Accline REMOVE (path="/content", "var", privilege=jcr:read)
Accline DENY (nodeType="example:Page", path="/var", privilege=jcr:read)
```

EXECUTION FAILED:

```
java.lang.RuntimeException: Failed to set ACL (java:jcr.security.AccessControlException: No such privilege jcr:understand) Accline REMOVE (principal="user_1", privilege=jcr:read)
```

Try It Yourself

- Update the configuration com.adobe.granite.apicontroller.FilterResolverHookFactory to set org.apache.sling.repoint.parser to org.apache.sling.*
- Checkout the feature/SLING-9572 branch:

```
git clone --branch feature/SLING-9572 git@github.com:apache/sling-org-apache-sling-jcr-repoint.git
```

- Build / install the code:

```
mvn clean install -P autoInstallBundle -Dsling.url=http://localhost:4502/system/console
```

- Navigate to: <http://localhost:4502/system/console/repoint>

Resources to Get Started with Sling Repoinit

- Sling Documentation: <https://sling.apache.org/documentation/bundles/repository-initialization.html>
- More about Repoinit: <https://blogs.perficient.com/2020/06/17/one-tool-to-configure-them-all-sling-repoinit/>
- Repoinit Grammer: <https://github.com/apache/sling-org-apache-sling-repoinit-parser/blob/master/src/main/javacc/RepoInitGrammar.jjt>
- Repoinit Logging: Add an INFO logger for the packages:
 - org.apache.sling.repoinit
 - org.apache.sling.jcr.repoinit

Thanks!

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A wooden signpost stands in a lush green field under a clear blue sky. The sign is dark wood with white lettering. It features a decorative arched top and a central rectangular panel. The text "Auf Wiedersehen" is written in a large, bold, serif font across the main panel. A thin red diagonal line runs from the top right corner of the slide down towards the bottom left, partially obscuring the background image.

Auf Wiedersehen